

Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 5/7/13 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: <http://www.swr.noaa.gov/ocap/doss.htm>.

DWR: Mike Ford, James Gleim, Andy Chu, Edmund Yu, Kevin Reece, Dan Yamanaka

FWS: Craig Anderson, Roger Guinee

NMFS: Barbara Rocco, Garwin Yip, Jeff Stuart, Barb Byrne

Reclamation: Josh Israel

DFW: Krystal Acierto, Bob Fujimura, Colin Purdy, Joe Johnson

EPA: Erin Foresman

SWRCB: Scott Ligare

USGS: not present

Agenda

1. Fish monitoring
2. Current operations
3. Review: (a) any DOSS advice? (b) any RPA-implementation updates to report to WOMT?

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also:

<http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm>.

Location	Chippis Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	Tisdale RST	Beach Seines
Sample Date	4/29, 5/1, 5/3	4/30, 5/3	4/30, 5/1– 5/4	4/30, 5/1– 5/6	4/29, 5/1– 5/3
Total Catch	495	233	99	1,149	31
FR	231	197 (1 w/GrCA code)	96	890	11
WR					
SR	154	3		11	1
LFR	2 (83 & 85 mm)				
Ad-Clipped Chinook	103	32	1 w/antenna; 2 w/sutures	248	1
DS					
Splittail	2 (224 & 268 mm)				18
Longfin					
SH (ad-clip)	2 (230 & 263 mm)				
SH (wild)	1 (246 mm)	1 (58 mm)			
W. Temp. (avg. °F)	65.8	66.2		61.0	66.4

Flows (avg. cfs)				7,118	
Turbidity (avg. NTU)	30.8	9.5		13.0	18.7
WR/LFR Avg. CPUE					
FR/SR Avg. CPUE				2.32	

Key: FR = Fall run; LFR = Late-fall run; SR = Spring run; WR = Winter run; SH = Steelhead; DS = Delta smelt; LFS = Longfin smelt; CPUE = catch per unit of effort; ACT = acoustic tag; N/A = not available; GrCA = green-marked caudal fin

Mossdale: DFW released 5,000 Chinook with a purple-dye-marked anal fin last Friday, 5/3, for the trawl efficiency test. One Chinook with antenna was caught on 4/30 and 2 Chinook were caught on 5/3 with sutures and without any other markings. Some tagged fish are being released into the San Joaquin River from the San Joaquin Restoration Program, so some sutured fish might have come from that release. The total juvenile Chinook catch for the season (since 4/2) at Mossdale is 2,903.

Releases/Monitoring:

2013 Hatchery Release Information: The following information was also provided by Yu (DWR) following personal communications with those listed from each hatchery, and the information is considered preliminary.

Feather River Hatchery (from Anna Kastner, DFW):

- 1,034,101 spring-run Chinook salmon (100% marked) were planted in Boyd's pump on the Feather River from 4/9 to 4/18.
- 1,033,627 spring-run Chinook salmon (100% marked) were planted at 90 San Pablo Bay, Crockett from 4/10 to 4/11.
- 92,300 spring-run Chinook salmon (100% marked) were planted at the Gridley boat ramp on 4/17.

Nimbus Fish Hatchery (from Paula Hoover, DFW)

- Fall-run Chinook salmon will be going into the American River at the Jibboom boat ramp and at Howe Ave on 5/6 and 5/7.

Mokelumne River Hatchery (from Bill Smith, DFW):

- 451,101 fall-run Chinook salmon were released at Sherman Island Road between 4/17 and 4/18; 112,447 were tagged.

6-Year Acoustic-Tag Study: As mentioned during previous DOSS meetings, there will be tag and release activities for the 6-Year Acoustic-Tag Study on 5/8 and 5/9. If anyone is interested in attending to observe these activities, please contact Josh Israel (Reclamation) for details.

Fish Salvage: Geir Aasen (DFW) provided the fish salvage report covering 4/29/13 through 5/5/13 and emailed it to DOSS participants. This report is posted at <ftp://ftp.delta.dfg.ca.gov/salvage> and you can locate the table under folder "DOSS salvage tables" (also try <http://www.dfg.ca.gov/delta/apps/salvage/Default.aspx> and click on "salvage FTP site").

DFW (*Fujimura*) report for April 29–May 5, 2013

The number of salvaged steelhead markedly increased last week. There were 90 non-ad-clipped steelhead salvaged during the reporting period. The estimated daily loss densities ranged from 2.12 to 18.67 fish/TAF and exceeded the second-stage loss criterion (12 fish/TAF multiplied by volume exported, in TAF) on 5/1. The season total of salvaged non-ad-clipped steelhead is 701. Thirty-six ad-clipped steelhead were also salvaged during the reporting period.

No non-ad-clipped older juvenile Chinook salmon were salvaged last week. The salvage numbers of non-clipped juvenile Chinook for both spring- and fall-run-sized fish also markedly increased. There were 1,633 non-ad-clipped juvenile Chinook salmon salvaged during the reporting period, of which 288 were spring-run size and 1,345 were fall-run sized.

Six white sturgeon (309 to 352 mm) were salvaged at the SWP on 5/2.

DFW (*Fujimura*) report on preliminary salvage estimates for 5/6/13:

There were 15 non-ad-clipped fall-run observed for a salvage of 60 (of this total, 1 was observed with a pink anal fin mark for a salvage of 4). One non-ad-clipped spring-run was observed for a salvage of 4; 0 steelhead were caught. At the SWP, 4 fall-run non-ad-clipped juvenile Chinook and 12 non-ad-clipped steelhead (preliminary estimate of loss density is 16.60 fish/TAF) were caught.

DOSS Weekly Salvage Update
Reporting Period: April 29–May 5, 2013
Prepared by Bob Fujimura on May 6, 2013 2030
Preliminary Results – Subject to Revision

Criteria	29-Apr	4/30/2013	1-May	2-May	3-May	4-May	5-May	Trend	
Loss Densities									
Wild older juvenile OS	0	0	0	0	0	0	0	→	0.0
Wild steelhead	5.14	8.28	18.67	4.40	2.12	6.15	0.00	↗	6.4
Exports									
SWP daily export	3,340	4,657	6,503	2,228	2,050	3,281	4,155	↗	3,745
CVP daily export	1,616	1,620	1,614	6,258	6,114	2,684	1,858	↗	3,109

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present
Loss = estimated number of fish lost at the CVP and SWP data export facilities based on estimated salvage (see below)

Chinook Salmon Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities
Race determined by size at date of capture; hatchery = adipose fin missing

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild					
Winter Run	0	0	→	271	731
Spring Run	288	659	↗	809	2,161
Late Fall Run	0	0	→	85	277
Fall Run	1,345	2,514	↗	2,788	4,662
Unclassified	0	0	→	8	5
Total	1,633	3,173		3,961	7,836
Hatchery					
Winter Run	0	0	→	187	595
Spring Run	7	15	↗	7	15
Late Fall Run	0	0	→	781	2,898
Fall Run	0	0	→	415	1,522
Unclassified	0	0	→	0	0
Total	7	15		1,390	5,030

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time

Steelhead Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild	90	320	↗	701	2,037
Hatchery	36	104	→	681	1,758
Total	126	424		1,382	3,795

State Water Project loss = salvage × 4.33; Central Valley Project loss = salvage × 0.68

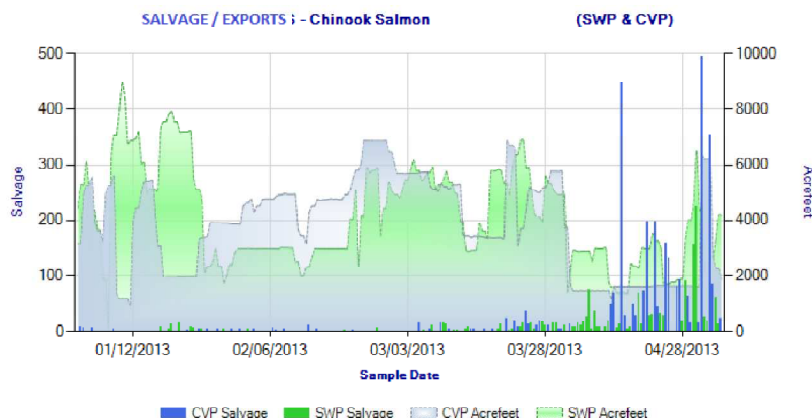


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during January 1 through May 5, 2013. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

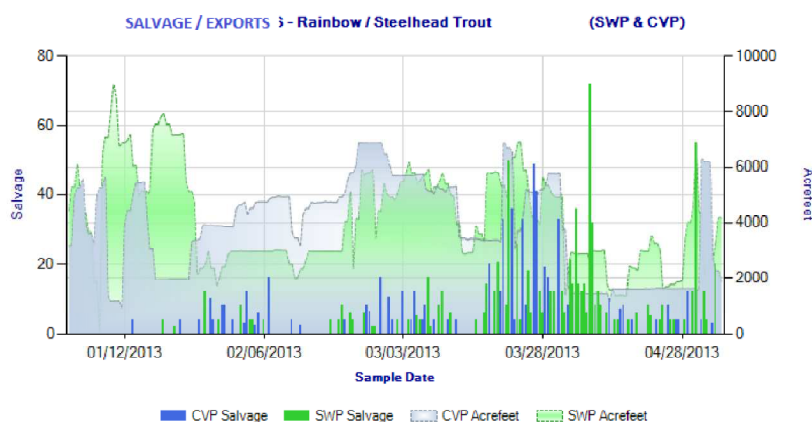


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during January 1 through May 5, 2013. Graph obtained from the DFG salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>

RPA Action IV.2.3: On 5/21, the daily loss of non-ad-clipped steelhead was 152 (rounded up from the reported 151.55 wild steelhead) at the CVP/SWP, which exceeded the second-stage trigger of daily loss >98 non-ad-clipped steelhead (12 fish/ TAF multiplied by 8.117 TAF combined exports = 97.40, then rounded up) of Action IV.2.3 (OMR flow management) in NMFS' RPA for long-term operations of the CVP and SWP. Pursuant to Action IV.2.3 (second-stage trigger), Reclamation and DWR shall "Reduce exports to achieve an average net (Old and Middle river) flow of no more negative than -2,500 cfs for a minimum of 5 consecutive days. Based on recent daily OMR flows, the CVP and SWP were already operating within the second-stage action response; therefore, 5/2 was day 1 of the action response and 5/6 was day 5. Because the preliminary losses from Monday, 5/6, indicated that the second-stage trigger had been exceeded again, the action response continues and OMR will remain at no more negative than -2,500 cfs through at least 5/9. Because steelhead loss on 5/9 will not be reported until 5/10, the earliest day to determine whether the action can be relaxed is Friday, 5/10.

Hatchery Coded-Wire-Tag (CWT) Results (as of 5/5/13, see table below)

From 4/29 to 5/5, CWT recoveries at the Delta fish facilities included fish from both the 4/9 to 4/18 Feather River spring-run Chinook salmon release at Boyd's pump and the 4/10 to 4/11 Coleman National Fish Hatchery (Coleman NFH) fall-run Chinook salmon release at Battle Creek. There are no RPA action triggers associated with these release groups. In addition, there was an unknown CWT (damaged tag, lost tag, no tag, or fish released loss) loss of 8.42 fish during this reporting period because a spring-run-sized Chinook salmon observed in salvage was released and not collected for processing. Since the beginning of the water year, the cumulative unknown CWT loss is 58.78 fish.

Ad-clipped Chinook salmon were observed in the Chinook Salmon/Steelhead Loss Estimate Whole Facility Efficiency special study at the CVP on 5/3 and 5/4. On 5/3, 2 of the ad-clipped Chinook salmon were from the 4/10 to 4/11 Coleman NFH fall-run Chinook salmon release at Battle Creek and 2 were from the 4/9 to 4/18 Feather River spring-run Chinook salmon release at Boyd's pump. On 5/4, 2 of the ad-clipped Chinook salmon were from the 4/10 and 4/11 Coleman NFH fall-run Chinook salmon release at Battle Creek and 1 was from the 4/17 to 4/18 Mokelumne River Hatchery fall-run release at Sherman Island Road. These observed Chinook did not factor into the salvage and loss calculations because these were observed during a special study.

CONFIRMED HATCHERY (ADIPOSE FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released ¹	Total Entering Delta	% Loss of Number Released ²	% Loss of Total Entering Delta ³	First Concern Level	Second Concern Level	Date of First Loss	Date of Last Loss
11/5/2012	F	Mokelumne River Hatchery	Mokelumne River	**	500.45	100,833	n/a	0.508	n/a	n/a	n/a	12/6/2012	4/8/2013
11/29/2012	LF	Coleman NFH	Battle Creek	Production	4100.48	805,542	n/a	0.509	n/a	n/a	n/a	12/6/2012	4/21/2013
12/18/2012	LF	Coleman NFH	Battle Creek	Spring Surrogate	74.55	72,074	n/a	0.103	n/a	0.5%	1.0%	12/31/2012	3/23/2013
1/6/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	138.70	79,000	n/a	0.178	n/a	0.5%	1.0%	1/20/2013	3/27/2013
1/25/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	24.40	85,000	n/a	0.029	n/a	0.5%	1.0%	2/3/2013	3/31/2013
2/7/2013	W	Livingston Stone NFH	Caldwell Park	Production	8.59	182,662	99,525	0.005	0.009	0.5%	1.0%	3/26/2013	3/26/2013
4/9 to 4/18/2013	S	Feather River Hatchery	Boyd's Pump	**	4.33	1,034,101	n/a	0.0004	n/a	n/a	n/a	4/30/2013	5/3/2013
4/10 to 4/11/2013	F	Coleman NFH	Battle Creek	Production	2.33	1,583,000	n/a	0.0001	n/a	n/a	n/a	5/2/2013	5/4/2013
4/17 to 4/18/2013	F	Mokelumne River Hatchery	Sherman Island Rd	**	0.00	112,447	n/a	0.000	n/a	n/a	n/a	5/4/2013	5/4/2013

UNCONFIRMED HATCHERY (ADIPOSE FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Facility	Unknown CWT Loss ⁴	Unread CWT Loss ⁵	Unknown Hatchery Loss ⁶	Acoustic Tag Loss ⁷	Number of Unassigned CWTs ⁸
SWP	53.58	0.00	0.00	17.63	1
CVP	5.20	0.00	0.00	0.00	0
TOTAL	58.78	0.00	0.00	17.63	1

SWP and CVP adipose fin clipped Chinook lost from 10/1/2012 through 5/05/2013.

¹Number released with the adipose fin clipped and a CWT.

²% Loss of Number Released = (Confirmed Loss/Number Released)*100.

³% Loss of Total Entering Delta = (Confirmed Loss/Total Entering Delta)*100.

⁴Adipose fin clipped Chinook was observed during fish count, but tag code could not be determined (e.g., damaged tag, lost tag, no tag, or Chinook accidentally released).

⁵Adipose fin clipped Chinook was collected during fish count, and has not been processed yet.

⁶CWT has been read, but hatchery release information not yet available.

⁷Adipose fin clipped Chinook released due to presence of sutures.

⁸CWT cannot currently be assigned to a salvage record with certainty since the CWT was lost and then found. CWT may be assigned to a salvage record if new information is available.

** Information not yet available.

DWR-DES Revised 5/08/2013

Preliminary data from DFW, DWR, FWS, and Reclamation; subject to revision.

Operations (5/7/13)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	800	Jones Pumping Plant	1,000
Reservoir Releases (cfs)			
Feather - Oroville	4,000 (up from 3,005 yesterday)	American - Nimbus	1,000
		Sacramento - Keswick	12,000 (effective 1:00 a.m. today)
		Stanislaus - Goodwin	3,000 (by 5/13, will

			decrease to 1,000)
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	413	San Luis (CVP)	664
Oroville	3,005	Shasta	3,711
New Melones		Folsom	691
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	8,265
Outflow Index (cfs)	9,300	San Joaquin River (cfs) at Vernalis	3,970
Total Delta Inflow (cfs)	13,504	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs)	-1,547
X2 (km)	81 (upstream of Collinsville)	OMR 14-day avg (cfs)	-1,009
E/I (%)	14.2 (3-d avg)		

Delta has been in balanced conditions since 4/25. Jersey Point and Emmaton salinity increased over the weekend; releases at Keswick and Oroville were increased to help reduce salinity at Emmaton. Inflows into Clifton Court Forebay were reduced from 1,500 to 1,000 cfs to reduce salinity at Jersey Point; will be further reduced through Thursday (at ~800 cfs today). Jersey Point and Emmaton water quality and outflow standards in D-1641 are currently controlling operations, including exports. The agencies are currently out of compliance with the Emmaton water quality standard.

The Banks Pumping Plant was shut down as of 1:00 p.m. yesterday and will remain shut down until Thursday at 9:00 p.m. for planned maintenance.

There was a general question about how DWR determines balanced vs. unbalanced conditions in the Delta. Chu (DWR) agreed to meet with those interested to provide that information. Anyone interested in attending this meeting should notify Byrne, who will send out an invitation and suggested date/time.

Smelt Working Group (SWG): SWG agreed that current flow conditions adequately protect delta smelt. Seasonal salvage total is up to 374 \geq 20-mm fish; 330 were salvaged in the last week. Total take for \geq 20-mm delta smelt is 2,350 with a corresponding concern level of 1,566. Take appears to be decreasing since May 3. Should OMR flow reach -2,500 to -3,500 cfs, SWG will reconvene to discuss a potential change to its recommendation.

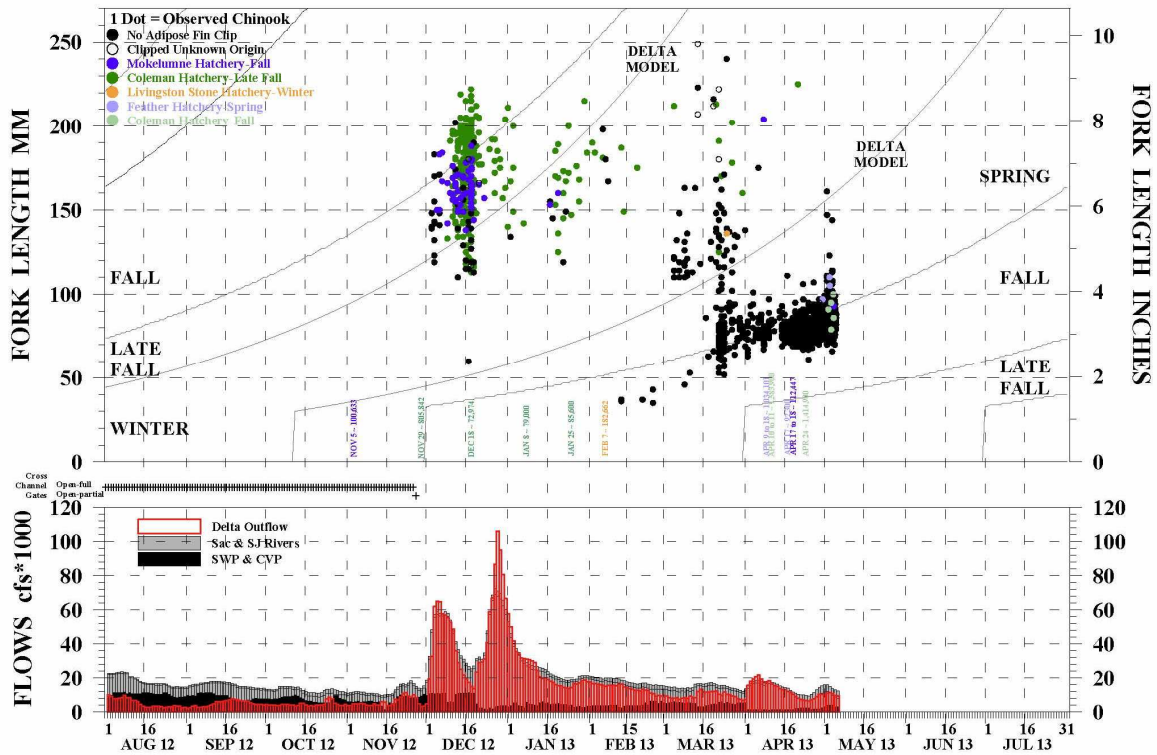
DOSS over Summer: DOSS will conduct monthly subgroup meetings to prepare/review the annual report and provide the information to the entire group.

DOSS Advice to WOMT and NMFS: None. Byrne (NMFS) will update WOMT on both the OMR and I:E ratio actions.

Next Meeting: The next DOSS conference call is scheduled for 5/14/13, at 9:00 a.m.

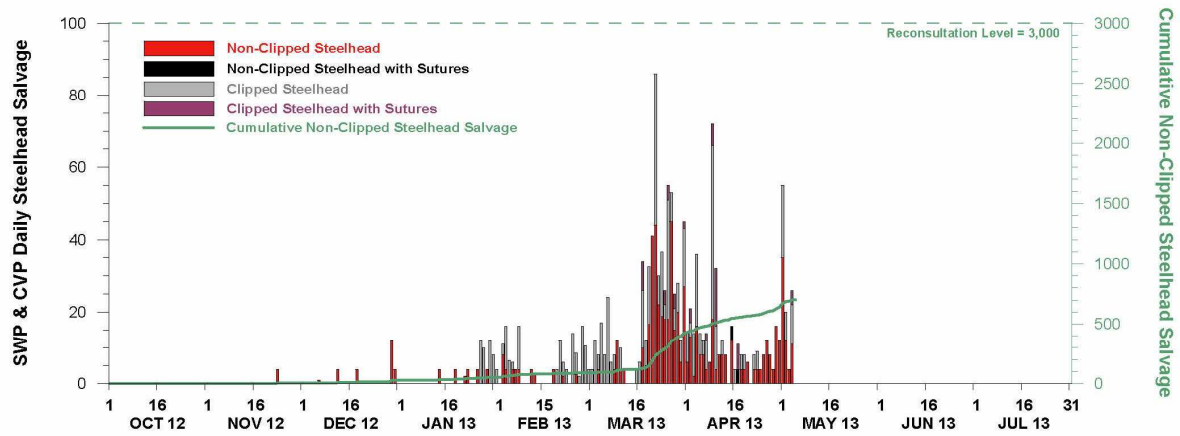
Below are graphs provided by DWR for Chinook salmon and steelhead salvaged or lost at the Delta fish facilities and observed in the Sacramento and San Joaquin rivers. For additional graphs, please visit the DWR website at: <http://www.water.ca.gov/swp/operationscontrol/calFed/calFedmonitoring.cfm>.

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP DELTA FISH FACILITIES 08/01/2012 THROUGH 05/05/2013



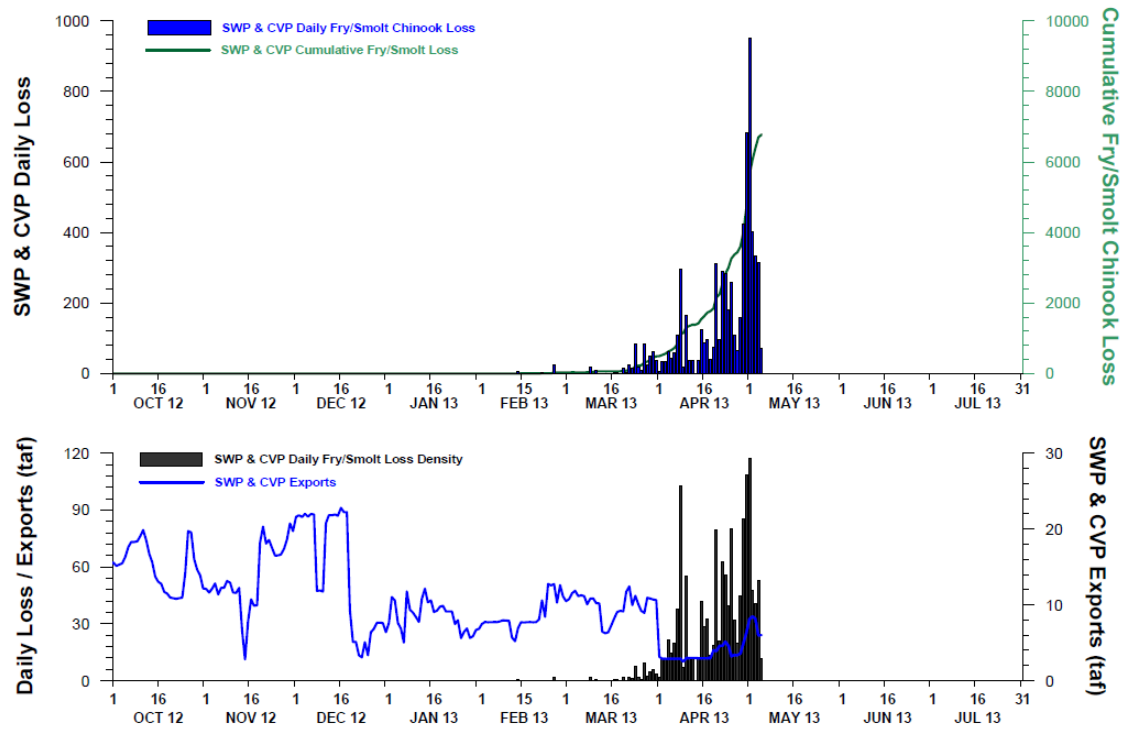
DWR-DES 06 MAY 2013 (UPDATED)
 Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.
 *Chinook outside of the length-at-date criteria (Delta model) are not reported.

STEELHEAD SALVAGE AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 05 MAY 2013



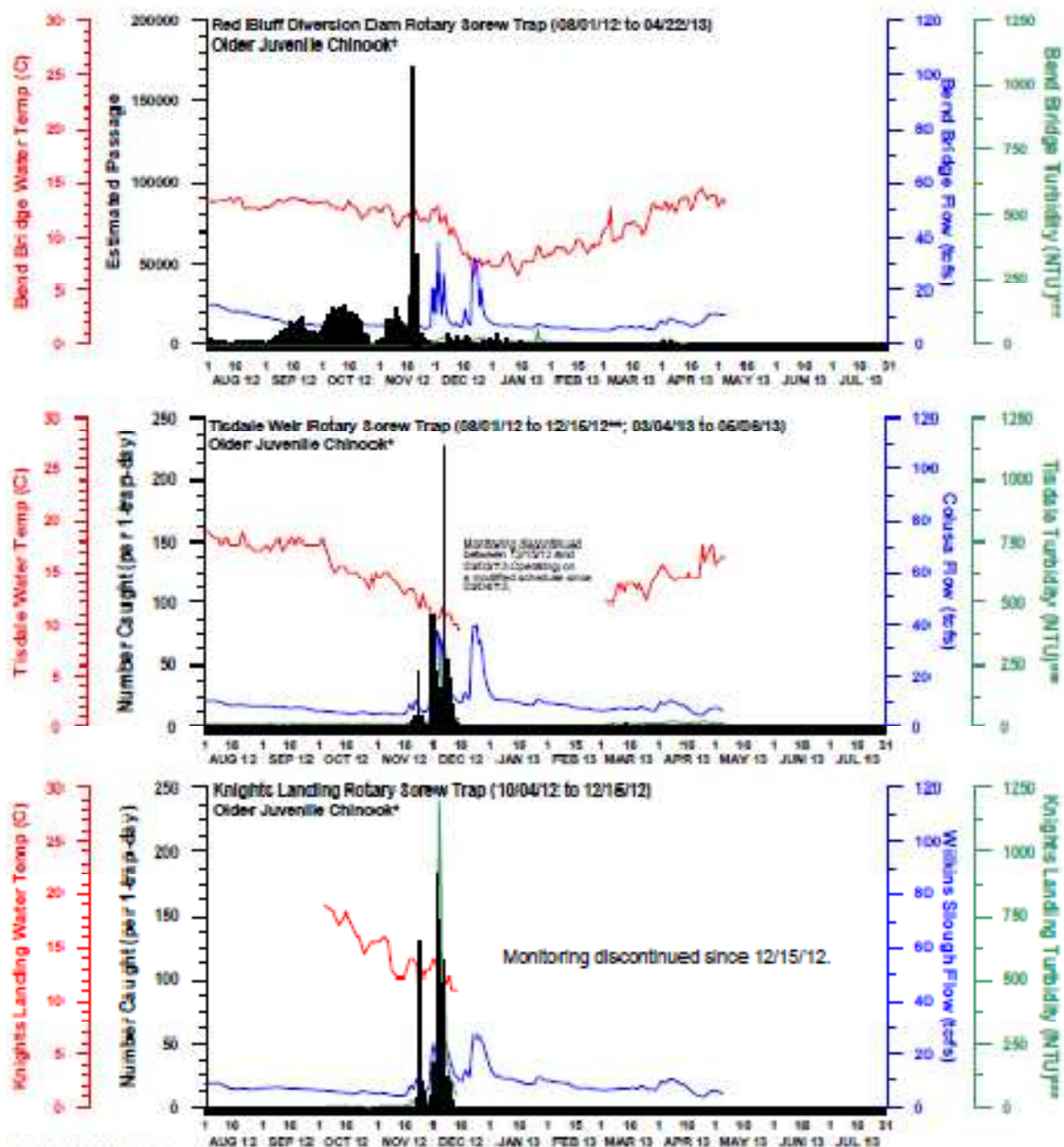
DWR-DES 06 MAY 2013 (UPDATED)
Preliminary data from DFW; subject to revision.

NON-CLIPPED FRY/SMOLT CHINOOK AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 05 MAY 2013



DWR-DES 06 MAY 2013
Preliminary data from DFW; subject to revision.
* Fry/smolt Chinook defined as all Chinook below the minimum winter run length-at-date criteria (Delta model).

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 06 MAY 2013

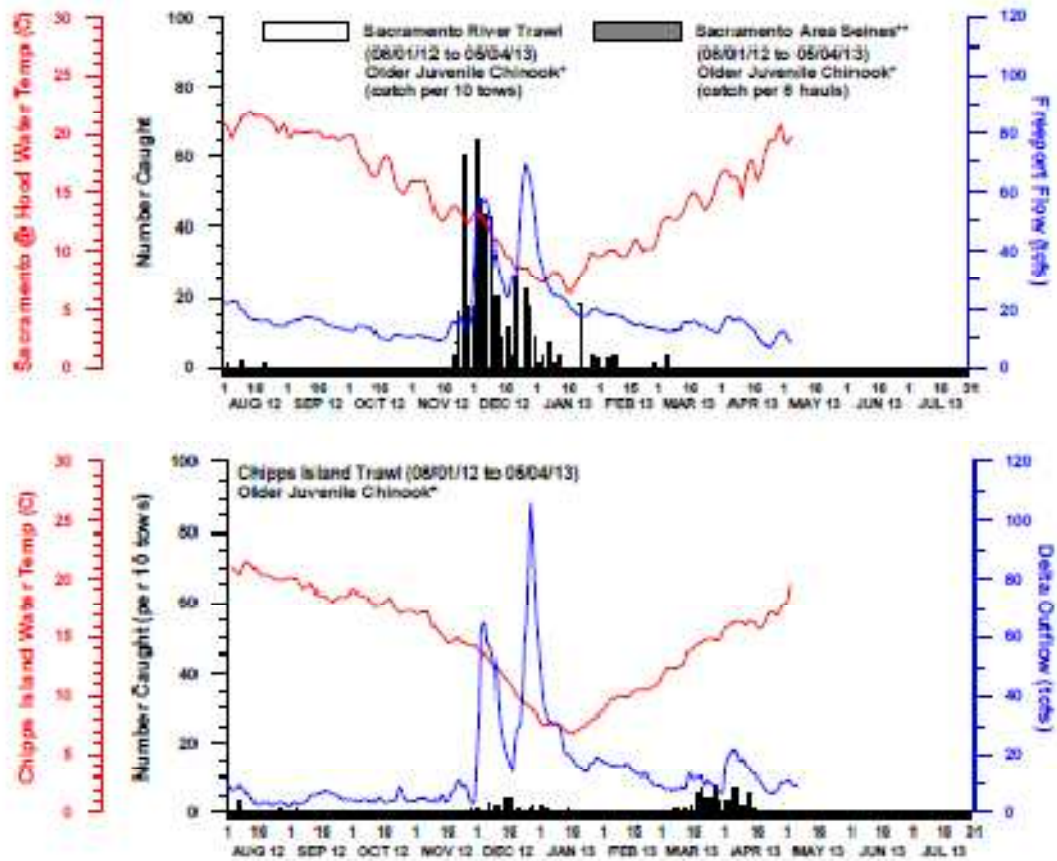
Preliminary data from DFW, FWS, and CDEC; subject to revision.

Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).

^{**} Tisdale Weir: One older juvenile caught on 11/14 and 43 older juveniles caught on 11/25. However, CPUE was not calculated due to problems with the cone clickers. As a result, data are not presented on the graph.

^{***} Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER & CHIPPS ISLAND



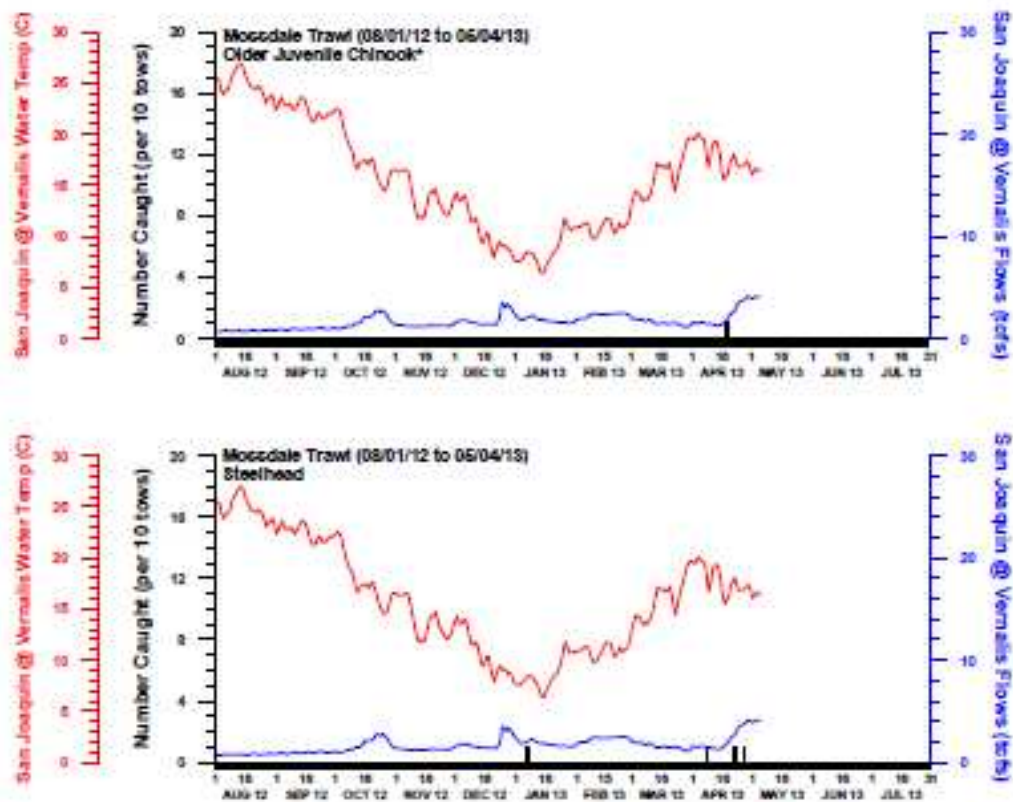
DWR-DIES 05 MAY 2013

Preliminary data from FWS and COREC, subject to revision.

*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).

**Sacramento area seine node consists of the following seine sites: Verona, Elthorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK AND UNMARKED STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER



DWR-DES 06 MAY 2013

Preliminary data from DFW, FWS, and CDEC; subject to revision.

*Older juvenile Chinook defined as all Chinook above the minimum winter run length-at-date criteria and below the maximum size included in the length-at-date criteria (Frank Fisher model).